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Sheng Liu

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ALSTON & BIRD LLP

BANK OF AMERICA PLAZA

101 SOUTH TRYON STREET, SUITE 4000

CHARLOTTE, NC 28280-4000

EXAMINER

JAIN, ANKUR

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,531	<b>Applicant(s)</b> LIU, SHENG	
	<b>Examiner</b> ANKUR JAIN	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed March 18<sup>th</sup>, 2009 have been fully considered but they are not persuasive. The Examiner would like to point out that in the Applicant's Remarks on page 4, Applicant notes that the technical problem addressed by the present application is to adjust the downlink transmission power of a plurality of RF units in base stations to the same UE. This concept is not explicitly in the claim language. Rather, the claim language states that there is a "base station system having a plurality of radio frequency units, and there is a signal quality measuring means for measuring signal quality of an uplink channel between each radio frequency unit and the same user equipment." In addition, the claim language only states that there "power control means for adjusting transmission power of the downlink channel corresponding to the uplink channel according to said average signal quality." In sum, this technical problem addressed by the present application is not in the claimed limitations. Thus, Applicant's argument is improper. The Examiner respectfully submits that on page 4 and 5 of Applicant's Remarks, Applicant is incorrect in the claim recitation of independent claim 1. Applicant states in the Remarks that the transmission power of the downlink channel corresponding to the uplink channel is adjusted according to signal quality of an uplink channel between each radio frequency unit and the same user equipment. This is **not** in the claimed limitations. Claim 1 only claims how there is adjustment of the transmission power of the downlink channel corresponding to the uplink channel

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according to said average signal quality, **not** according to the signal quality of an uplink channel between each radio frequency unit and the same user equipment. Thus, Applicant's argument is improper. The Examiner still maintains that Naito teaches "power control means for adjusting transmission power of the downlink channel corresponding to the uplink channel" in Column 8 lines 34-40, Figure 1A, and Figure 1B. In addition, Applicant mentions on page 5 of the Remarks that there is only one base station disclosed in Naito. However, the Examiner would like to point out that again, this recitation is not in the claimed limitations. Thus, Applicant's argument is improper. In response to Applicant's argument that there is no suggestion to combine the Naito and Sadri references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Naito to incorporate the limitations of Sadri as taught by Sadri, for the purpose of enhancing the system efficiency and versatility of the multicast message communicating method and system of Naito involving the plurality of mobile stations and base station, by implementing the RAKE receiver and calculating means for calculating average signal quality.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claims 1 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito, US Patent 6,728,226 (hereafter referenced as Naito), in view of Sadri, US Patent 6,621,808 (hereafter referenced as Sadri).

Regarding **Claim 1 and Claim 10**, Naito teaches “an apparatus for controlling downlink power of the complex cell in the centralized base station system based on remote radio frequency units, said base station system having a plurality of radio frequency units” (see Column 6 lines 39-62, Figure 1A, and Figure 3). “Plurality of radio frequency units” reads on the mobile stations 31-35 shown in Figure 3. Naito also teaches “signal quality measuring means for measuring signal quality of an uplink

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channel between each radio frequency unit and the same user equipment" (see Column 8 lines 28-45 and Figure 1A). Naito also teaches "power control means for adjusting transmission power of the downlink channel corresponding to the uplink channel according to said average signal quality, so that the transmission power of the downlink channel corresponding to the uplink channel with a lower average signal quality is relatively lower" (see Column 8 lines 34-40, Figure 1A, and Figure 1B). Naito does not teach a "RAKE receiver." However, Sadri generally teaches a "RAKE receiver" (see Figure 2C and Coherent Rake Receiver 156). Naito also does not teach "average signal quality calculating means for calculating average signal quality of each uplink channel according to the measured signal quality." However, Sadri generally teaches "average signal quality calculating means for calculating average signal quality of each uplink channel according to the measured signal quality" (see Column 2 lines 1-15). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Naito to incorporate the limitations of Sadri as taught by Sadri, for the purpose of enhancing the system efficiency and versatility of the multicast message communicating method and system of Naito, by implementing the RAKE receiver and calculating means for calculating average signal quality.

3. **Claims 2, 4, 6, 8, 11, 13, 15, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Sadri, as applied to Claims 1 and 10 above, and further in view of Tsunehara et al, US Patent 6,907,260 (hereafter referenced as Sun).

Regarding **Claim 2 and Claim 11**, the combination of Naito and Sadri does not teach “characterized in that said signal quality is signal intensity.” However, Sun generally teaches “characterized in that said signal quality is signal intensity” (see Column 7 lines 10-15). SIR is related to power, which clearly is related to “signal intensity.” It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination to incorporate characterized in that signal quality is signal intensity as taught by Sun, for the purpose of enhancing the system efficiency and versatility of the multicast message communicating method and system of the combination, by implementing Sun’s method for controlling transmit power for a communication system.

Regarding **Claim 4 and Claim 13**, the combination of Naito and Sadri does not teach “characterized in that said signal quality is signal-interference ratio.” However, Sun generally teaches the claimed limitation in Column 7 lines 10-15.

Regarding **Claim 6 and Claim 15**, the combination of Naito and Sadri does not teach “wherein said base station system has a merging unit for merging downlink physical channels so as to be modulated by a downlink modulating unit, characterized in that said power control means further comprise means for controlling the merging unit's proportion factor for other downlink physical channel inputs than a synchronous channel, so that the proportion factor of physical channel of the downlink channel having lower uplink average signal quality is relatively lower.” However, Sun generally teaches the claim limitations in Column 2 lines 1-5, Column 2 lines 50-60, Column 7 lines 1-15, and Figure 25. “Merging unit” reads on the adding circuit 26. Also, the

"modulating unit" reads on the demodulating portions 215a to 215n. Also, "lower uplink average signal quality is relatively lower" reads on Column 7 lines 1-15.

Regarding **Claim 8 and Claim 17**, the combination of Naito and Sadri does not teach "characterized in that said power control means further comprises selecting means for comparing each average signal quality with a predetermined threshold, so that the downlink channel corresponding to the uplink channel with average signal quality below or equal to the threshold has transmission power of 0." However, Sun generally teaches the claim limitation in Column 7 lines 1-15. "Comparing each average signal quality with a predetermined threshold" reads on the predetermined value and transmitting power controlling information accordingly in the disclosed column and line numbers. Also, the "transmission power of 0" can easily be achieved by the base station in Sun depending on the signal quality.

4. **Claims 3 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Sadri, as applied to Claims 1 and 10 above, and further in view of Jin et al, US 2005/0159118 A1 (hereafter referenced as Jin).

Regarding **Claim 3 and Claim 12**, the combination of Naito and Sadri does not teach "characterized in that said signal quality is code channel power." However, Jin generally teaches "characterized in that said signal quality is code channel power" (see Paragraph 0001). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination so that signal quality is code channel power as taught by Jin, for the purpose of accurately regulating transmitted power.



5. **Claims 5 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Sadri, as applied to Claims 1 and 10 above, and further in view of O'Neill, US 2006/0084379 A1 (hereafter referenced as O'Neill).

Regarding **Claim 5 and Claim 14**, Sadri generally teaches "characterized in that said average signal quality is calculated over a period of time" (see Column 2 lines 1-15). The combination of Naito and Sadri does not teach "such that the average path losses of uplink and downlink channels are substantially equal." However, O'Neill generally teaches the claim limitation in Paragraph 0098. It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination so that the average path losses of uplink and downlink channels are substantially equal as taught by O'Neill, for the purpose of increasing and enhancing system efficiency.

6. **Claims 7 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Sadri and Sun, as applied to Claim 6 and 15 above, and further in view of Catreux et al, US 2002/0183010 A1 (hereafter referenced as Cat).

Regarding **Claim 7 and Claim 16**, the combination of Naito, Sadri, and Sun does not teach "characterized in that said means for controlling the proportion factor performs said control by performing normalizing calculation on the average signal quality." However, Cat generally teaches "characterized in that said means for controlling the proportion factor performs said control by performing normalizing calculation on the average signal quality" (see Paragraph 0008). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination so

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that said means for controlling the proportion factor performs said control by performing normalizing calculation on the average signal quality as taught by Cat, for the purpose of increasing and enhancing system efficiency.

7. **Claims 9 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Sadri and Sun, as applied to Claim 8 and 17 above, and further in view of Otsuka et al, US 2005/0026614 A1 (hereafter referenced as Otsuka).

Regarding **Claim 9 and Claim 18**, the claim limitation “wherein said base station system has a merging unit for merging downlink physical channels so as to be modulated by a downlink modulating unit” is taught by claim 6. The combination of Naito, Sadri, and Sun does not teach “characterized in that said power control means further comprise switching means for switching off the corresponding input of the downlink channel, determined by the selecting means as having transmission power of 0, to the merging unit.” However, Otsuka generally teaches “characterized in that said power control means further comprise switching means for switching off the corresponding input of the downlink channel, determined by the selecting means as having transmission power of 0, to the merging unit” (see Paragraph 0177). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination with the above limitation as taught by Otsuka, for the purpose of increasing and enhancing system efficiency.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ankur Jain whose telephone number is 571-272-9747. The examiner can normally be reached on M-F, 7:30 am to 5:00 pm, EST, Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yuwen Pan, can be reached on 571-272-7855. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ankur Jain/

Examiner, Art Unit 2618

04/28/2009

/Yuwen Pan/

Primary Examiner, Art Unit 2618